An introduction to clinical practice guideline for Chinese undergraduates in stomatology

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Clinical practice is not only the most important link in medical education, but also a major approach for enhancing students’ capability of practical work, professional quality and clinical norms. The teaching quality of clinical practice is closely related to the level of medical teaching. In particular, the education of stomatology, due to its strong practical operability, attaches more importance to the teaching quality of the capability of clinical practice. Chinese education of stomatology has entered a rapid development era (1, 2). There are about 183 dental schools in China now. Recent years, the demand for dental professionals is largely increasing in China. As there are so many education establishments, it is difficult for different dental schools to reach the same level of teaching quality without a unified standard. Enhancing teaching quality and regulating teaching behaviours have become important tasks for the Chinese higher education of stomatology. The Society of Dental Education, the Chinese Stomatological Association previously established ‘Dental Education Standards for Chinese Under-graduates’ (3). To further regulate the teaching, guarantee the teaching quality, and unify the teaching objectives of undergraduate clinical education in China, has made a presentation of national dental syllabus and requirements to guide the dental practice for Chinese undergraduate students.

Abstract
The Society of Dental Education, Chinese Stomatological Association has formulated the Standards of Clinical Practice for Chinese Undergraduate Students Majoring in Stomatology, on the basis of extensively soliciting the views of experts in various fields. The aim of this standard is to guide clinical teaching and improve teaching quality in schools of stomatology in China. The standards include eight parts: the standard of clinical practice for oral and maxillofacial surgery, for cariology and endodontics, for periodontics, for the oral mucosa diseases, for preventive dentistry, for pedodontontology, for prosthodontics and for oral imageology. Each part includes introduction to subjects, the clinical practice time period, the purpose and requirements of practice, the disease types of practice and items of clinical operation, the index of the lowest workload of practice and the major methods of assessment. These standards are not only the basic requirements and guiding principles for clinical teaching, but also the major criteria for assessing the clinical teaching quality of stomatological colleges/schools of China.

Basic requirements for the stomatological clinical practice of Chinese higher education
The basic system of the higher undergraduate education of stomatology in China involves an educational period of 5 years
Some institutions of higher learning offer a programme that involves a successive educational period of 7 years for bachelor and master degrees, or a successive educational period of 8 years for bachelor, master and doctoral degrees. Therefore, the practical standards that we have worked out should be applicable to not only the practical teaching of the undergraduate stomatological major of higher medical colleges, but also the clinical practice of the undergraduate teaching in the long period of educational systems (including the system of 7 years for bachelor and master degrees and the system of 8 years for bachelor, master and doctor degrees). According to the educational standards of the stomatological major in China, the period of clinical practice for the stomatology major should be no less than 45 weeks (3). As a part of it, the period of practice for oral and maxillofacial surgery should be no less than 12 weeks (with no less than 4 weeks practice at wards), and the period of practice for oral medicine, prosthodontics and oral imageology should be no less than 17, 14 and 2 weeks, respectively. The practices of oral medicine include cariology and endodontics, periodontics, diseases of the oral mucosa, pedodontology and preventive dentistry. Advantageous medical colleges can offer practice based on different branches of learning. The period of practice for cariology and endodontics should be no less than 9 weeks, and for prosthodontics be no less than 12 weeks. Practice for prosthodontic technology may be arranged. In addition, 1 week of pre-practice should be arranged. In the week, basic education can be offered in such aspects as the communication between doctors and patients, the codes of conduct for medical workers, the control of nosocomial infection and the medical laws and regulations. Furthermore, students should be made to know the basic procedures of the work in hospitals.

To make sure that stomatological students can acquire the corresponding capability of clinical practical work through practice, we have incorporated workload indexes of clinical practice into these standards. All these indexes are basic demands. Medical colleges can work out their own indexes according to their training objectives. However, the training objectives should be no less than these indexes. In addition, interns should have a rigorous scientific style, desirable medical ethics and a noble ideological morality. Medical ethics are not only the basic requirements for doctors, but also a basic part of practice evaluation. Teaching units can reasonably arrange practice evaluation according to their own conditions. Professional assessments chiefly include the workload of clinical practice, case reports and operational skills. Supplemental forms, including written examinations and interviews, are also available.

Contents of clinical practice standards for Chinese undergraduate students majoring in stomatology

The standards consist of eight parts: the standard of clinical practice for oral and maxillofacial surgery, cariology and endodontics, periodontics, diseases of the oral mucosa, pedodontology, preventive dentistry, prosthodontics and oral imageology. The contents include as follows.

Preface

The preface chiefly introduces the basic concepts, categories, teaching methods and the minimal time required for clinical practice of this branch of learning. Chinese stomatology and Western dentistry have similarities and differences (5). First and foremost, the set-up and connotation of the branches of learning in China are unique. The oral and maxillofacial surgery in China includes not only traditional oral surgery (prosthetic surgery, temporomandibular arthropathy, maxillofacial injuries and salivary gland diseases), but also maxillofacial reconstructive surgery, orthognathic surgery, microsurgery and head and neck cancer surgery. Through many years of practice, the system of oral and maxillofacial surgery with Chinese characteristics has come into being (6). Therefore, it is particularly set forth in the standard that required students must practice at least 4 weeks at wards of oral and maxillofacial surgery. The science of cariology and endodontics consists of two parts: cariology and endodontics. Dentistry in Western is different from that in China on operative dentistry and conservative dentistry. In Chinese stomatology, cariology and endodontics is not only a key course in the major of stomatology, but also an important part of the clinical science of stomatology. It includes such teaching items as dental caries, dental pulp diseases, peripatric diseases and other dental hard tissue diseases, but excludes such items as coronal restorations (7). Another obvious difference is that the stomatology in China includes ‘diseases of the oral
mucosa’. It is a subject that systematically studies the pathogenesis, diagnosis, treatment and prevention of diseases of the oral mucosa (8). It involves many types of research targets and is closely related to the state of organisms as a whole. Therefore, it is called ‘oral medicine’ in Western dentistry (9) and is also literally translated into ‘oral internal medicine’ to emphasise its relationship with ordinary internal medicines. Furthermore, it is defined as ‘a special branch of learning concerning the health and disease research of oral and perioral tissues’ (10). It focuses on exploring the principles of internal medicine related to oral diseases and the laws of treating oral diseases with drugs. It chiefly includes the oral representations of infectious and non-infectious diseases of oral mucosa and the precancerous lesion and systematic diseases. The subjects of periodontology, prosthodontics, pedodontontology, preventive dentistry and oral imaging diagnostics in Chinese stomatology are basically consistent with those in Western dentistry.

The purpose and requirements of professional practice

The purpose and requirements of clinical practice specifically reflect the training objective of the undergraduate education of stomatology in China. There are two parts that include ‘the purpose of practice’ and ‘the requirements of practice’. The purpose of practice specifies the quality standards that students are expected to reach through the clinical practice of this branch of learning. The requirements of practice consist of the requirement of basic capabilities, the requirement of diagnosis and treatment of certain types of diseases, and the requirement of the minimal workload. As specific requirements can be assessed, they have been worked out to serve the purpose.

The practice standards embody three basic characteristics in the aspect of the purpose and requirements of practice. First, the undergraduate education of stomatology in China is focused on oral and maxillofacial surgery, cariology and endodontics, and prosthodontics (11). The purpose of practice of these three branches of learning also fully reflects the focus of clinical practice of Chinese undergraduate education of stomatology. According to the guiding principles of higher medical teaching in China, teaching purpose of clinical practice is classified into three different levels, including to master (acquire the knowledge, skill and operating procedures completely), to understand (grasp the main content of the knowledge or skill) and to be aware (knowing outlines of the knowledge or skill in brief). For example, the purpose of practice of oral and maxillofacial surgery includes as follows: to master the basic theory and knowledge of oral and maxillofacial surgery, to master the principles and methods of clinical diagnosis, therapy and emergency treatment of various common diseases of oral and maxillofacial surgery, to master the work procedures, history-taking, physical examination, auxiliary examination and medical paperwork documentation, to understand how to apply and analyse clinical data (including imaging data), to understand the standard methods of using and maintaining medical instruments routine used and to be aware of the nursing conventions of common diseases of oral and maxillofacial surgery. The purpose of clinical practice of cariology and endodontics includes as follows: to master the clinical operative skills of common dental and endodontic diseases, including dental caries, dental hard tissue non-caries diseases, chronic pulpitis and chronic periapical periodontitis; to independently and correctly diagnose and treat endodontic diseases; to understand the basic principles of emergency treatment of dental and endodontic diseases and the management over the infection of oral medicine; to understand the methods of treating difficult endodontic diseases, including serious dental defects and diseases after apexification and root canal therapy; to be aware of the cutting-edge progress of the basic and clinical research, including microscopic pulp therapy. The clinical practice standards of prosthodontics includes as follows: to master the principles of examination, diagnosis and treatment of common diseases of prosthetic dentistry, including dental defect, dentition defect and denture depletion; to master the therapeutic principles of common diseases of prosthetic dentistry; to work out a reasonable plan of treatment; to master the conventional examination technologies and measures of prosthetic dentistry; to understand conventional technologies and methods of prosthetic treatment; to solve common problems in the process of prosthetic treatment; to be aware of the latest clinical progress in prosthodontics. Although these representations are different to some extent, the basic purposes of various branches of learning are consistent amongst different subspecialties.

Second, the diseases that should be treated during the clinical practice and the types of clinical operations are listed separately, so that the standards of clinical capability that should be reached after the clinical practice of undergraduate education can be specified. In addition, specific indexes of medical work have been figured out for the construction of the units of clinical practice of undergraduate education. The higher education of stomatology not only requires basic conditions of theoretical teaching and basic conditions of experimental teaching, but also focused on theoretical teaching that exerts a huge influence on the teaching effect. Therefore, the Guiding Committee of Stomatological Teaching of the Ministry of Education of China has worked out Standards of Stomatological Education, which explicitly puts forward the index of educational infrastructures with the configuration of artificial head moulds as the basic condition (12). Likewise, some colleges lack suitable bases of clinical teaching and are very weak in the training of students’ capability of clinical practice. These standards of clinical practice put forward explicit requirements for the types of diseases for practice and the items of clinical skills. As a matter of fact, these are also the teaching conditions that the affiliated medical institutions required by the undergraduate education of stomatology. They play a very important role in regulating the basic conditions of undergraduate education of stomatology in China, guaranteeing the basic level of students’ capability of clinical practice and enhancing the basic capability of Chinese undergraduate graduates of stomatology. Various branches of learning have different requirements for the objective of clinical practice (Table S1). Oral and maxillofacial surgery is focused on the technology of tooth extraction, whilst the clinical practice of various diseases attaches more importance to the principles of treatment than to the operational technology of clinical treatment. In clinical practice of endodontics and prosthodontics, the clinical skill training covers a larger proportion. Other branches of learning also have their respective characteristics.
Third, the minimal workload is set for the clinical practice of various branches of learning. The setting of the minimal workload has established an explicit objective that can be quantitatively assessed for teaching units. The indexes of the minimal workload of clinical practice of various branches of learning are summarised (Table S2). The indexes of practice of Oral and maxillofacial surgery include two parts (outpatients and wards) and 13 items. Indexes of Endodontics, periodontics and pedodontontology all include two parts (disease types and operation). The science of diseases of the oral mucosa attaches more importance to the diagnostic training of diseases, with diseases as indexes. Prosthodontics, preventive dentistry and oral imaging diagnostics all take operational items as their indexes. All these embody the characteristic of clinical diagnosis of various branches of learning. Oral and maxillofacial surgery emphasises the training of making clinical medical records and recording medical documentations as the requirements of workload for practice. Although various clinical branches of learning put forward the making of outpatient medical records as the basic learning content in their ‘basic requirements’, they do not take the writing of medical documentation as the requirement of the index of practice. In the requirements of the index of practice, various branches of learning further explicitly define contents as probation requirements. For example, aplexification in the clinical practice of endodontics, aggressive periodontitis in periodontics, dental trauma in pedodontontology and denture false tooth repair in prosthodontics all are parts of probation. Interns act as assistants in emergency treatments, oral and maxillofacial surgery, periodontal surgery, etc. All these embody the concept that undergraduate education is focused on basic theory, fundamental knowledge and basic skills.

Assessment

Disciplinary assessment is the major approach for checking the performance of clinical practice. According to the time period of disciplinary practice, most branches of learning adopt the set-up of such staged assessments as interim assessment, discipline-out assessment and comprehensive assessment before graduation. Only discipline-out assessment is defined for disciplines whose period of practice is 1 week. These standards of practice put forward the plan of establishing the standardised assessment of clinical level. Various units of clinical teaching are required to adopt three standard links (including the minimal workload of diagnosis and treatment, reports of treated cases and assessment of clinical skills for the assessment of students’ clinical level). In this way, we can comprehensively assess students’ performance in practice and the technical level of clinical medical treatment. In addition, teaching units may require students to provide their own registers of clinical practice according to their own training objective, and teachers can check the fulfilment of practice tasks according to the lowest clinical workload of interns worked out by their colleges, and provide the grading result of medical records of inpatients of oral and maxillofacial surgery. Colleges can, according to their own situations, adopt such forms, including clinical case reports, literature overview, foreign language translation and reading reports. Scores are given according to the contents of reports and performance of site defence. The aim of the clinical skills assessment is designated items of clinical operation of outpatients, and the assessment is carried out according to operational quality. Generally, clinical operational items that need to be mastered according to the standards of practice are enrolled. As set forth in these standards, at least three advanced teachers are required to attend all examinations. Various units can freely adopt the 100-mark system or equivalent 4-level system (excellent, good, pass and fail).

Summary

To standardise the clinical practice of higher medical colleges of stomatology in China, the Professional Committee of Stomatological Education of Chinese Stomatological Association has worked out Standards of Clinical Practice for Chinese Undergraduate Students Majoring in Stomatology. These standards include introduction to subjects, the purpose and requirements of practice, the types of diseases anticipated to get involved and items of clinical operation, the index of the minimal workload of practice and the major methods of assessment. This article introduces the contents and practical significance of these standards. The standards are not only the basic requirements of the clinical teaching of stomatological colleges, but also guiding principles for Chinese higher stomatological colleges. In addition, they are the major basis for assessing the clinical teaching quality of stomatological colleges in the future. This plays a very important role in regulating teaching conditions, enhancing the teaching level and promoting teaching progress.

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References


Supporting information
Additional Supporting Information may be found in the online version of this article:
Table S1. The requirements of practice for the specialties.
Table S2. The lowest workload of the practice.